CLAIMS

What is claimed is:

1. A schema comprising:

at least one definition that describes entities in a distributed computing system; and

at least one relationship that identifies links between the entities in the distributed computing system, wherein the schema is used by a development tool and a deployment tool.

2. The schema of claim 1 wherein the schema is further used by a management tool.

3. The schema of claim 1 wherein the schema allows a user of the development tool to identify desired operational intentions.

4. The schema of claim 1 wherein the at least one definition includes a resource definition, a system definition and an endpoint definition.

5. The schema of claim 1 wherein the at least one definition includes a resource definition that describes a behavior associated with a system.

6. The schema of claim 1 wherein the at least one definition includes a system definition that describes a portion of an application deployed in the distributed computing system.

7. The schema of claim 1 wherein the at least one definition includes an endpoint definition that describes communication information associated with a system.

8. The schema of claim 1 wherein the at least one relationship includes a containment relationship, a delegation relationship, a connections relationship, a hosting relationship and a reference relationship.

9. The schema of claim 1 wherein the at least one relationship includes a containment relationship that describes the ability of a particular definition to contain members of other definitions.

10. The schema of claim 1 wherein the at least one relationship includes a delegation relationship that exposes members contained in a particular definition.

11. The schema of claim 1 wherein the at least one relationship includes a connections relationship that identifies available communication interactions between a plurality of definitions.

12. The schema of claim 1 wherein the at least one relationship includes a hosting relationship that describes dependencies between a plurality of definitions.

13. The schema of claim 1 wherein the at least one relationship includes a reference relationship that identifies ordering relationships between a plurality of definitions.

14. The schema of claim 1 further comprising an abstract portion associated with templates for distributed applications and a concrete portion associated with particular implementations of distributed applications.

15. The schema of claim 1 further comprising a plurality of relationships, wherein the schema provides for the communication of settings across the plurality of relationships.

16. The schema of claim 1 further comprising a plurality of relationships, wherein the schema provides for the communication of behavioral information across the plurality of relationships.

17. One or more computer readable media having stored thereon a plurality of instructions that implement a schema, the schema comprising:

at least one system definition that describes a portion of an application associated with a distributed computing system;

at least one resource definition that describes a behavior associated with the system; and

at least one endpoint definition that describes communication information associated with the system.

18. One or more computer readable media as recited in claim 17 wherein the schema further includes at least one relationship that identifies links between entities in the distributed computing system.

19. One or more computer readable media as recited in claim 17 wherein the schema further includes a containment relationship that describes the ability of a particular definition to contain members of other definitions.

20. One or more computer readable media as recited in claim 17 wherein the schema further includes a communication relationship that identifies available communication interactions between a plurality of definitions.

21. One or more computer readable media as recited in claim 17 wherein the schema is used by any of: a development tool, a deployment tool, or a management tool.

22. One or more computer readable media as recited in claim 17 wherein the schema models a target system on which the application will be installed.

23. A design tool comprising:

a system definition model to enable abstract description of distributed computing systems and distributed applications; and

a schema to dictate how functional operations within the system definition model are to be specified.

24. The design tool of claim 23 wherein the design tool is a distributed application development tool.

25. The design tool of claim 23 wherein the design tool is a distributed application deployment tool.

26. The design tool of claim 23 wherein the design tool is a distributed application management tool.

27. The design tool of claim 23 wherein the distributed applications are scale-invariant.

28. A data structure stored on one or more computer-readable media that is instantiated in accordance with a schema, the schema comprising:

at least one system definition that describes a component of a distributed application;

at least one resource definition that describes a behavior associated with the component;

at least one endpoint definition that describes communication information associated with the component;

at least one containment relationship that describes the ability of a particular definition to contain members of other definitions;

at least one delegation relationship that exposes members contained in the particular definition;

at least one communication relationship that identifies available communication interactions between a plurality of definitions;

at least one hosting relationship that describes dependencies between the plurality of definitions; and

at least one reference relationship that identifies ordering relationships between the plurality of definitions.

29. The data structure of claim 28 wherein the distributed application is scale-invariant.

30. The data structure of claim 28 wherein the schema is accessible by an application development tool and an application deployment tool.

31. The data structure of claim 28 wherein the schema is accessible by an application deployment tool and an application management tool.

32. The data structure of claim 28 wherein the schema is accessible by:

an application development tool;

an application deployment tool; and

an application management tool.

33. A method comprising:

creating a data structure in accordance with a schema, the schema defining at least one definition that describes entities in a distributed computing system, at least one containment relationship that describes the ability of a particular definition to contain members of other definitions, at least one delegation relationship that exposes members contained in the particular definition, at least one communication relationship that identifies available communication interactions between a plurality of definitions, at least one hosting relationship that describes dependencies between the plurality of definitions, at least one reference relationship that identifies ordering relationships between the plurality of definitions; and

populating the data structure.

34. One or more computer readable media having stored thereon a plurality of instructions that, when executed by a processor, cause the instructions to:

load a definition that describes entities in a distributed computing system; and

load a relationship that identifies communication links between the entities in the distributed computing system, wherein the definition and relationship data is used during development and deployment of the distributed computing system.

35. The computer readable media of claim 34 wherein the definition and relationship data is further used during management of the distributed computing system.

36. The computer readable media of claim 34 wherein the definition includes a resource definition, a system definition and an endpoint definition.

37. The computer readable media of claim 34 wherein the relationship includes a containment relationship, a delegation relationship, a communication relationship, a hosting relationship and a reference relationship.

38. A method comprising:

loading a definition that describes entities in a distributed computing system; and

loading a relationship that identifies communication links between the entities in the distributed computing system, wherein the definition and relationship data is used during development, deployment and management of the distributed computing system.

39. The method of claim 38 wherein the definition includes a resource definition, a system definition and an endpoint definition.

40. The method of claim 38 wherein the relationship includes a containment relationship, a delegation relationship, a communication relationship, a hosting relationship and a reference relationship.